

**JACKRABBIT WASH
FCD GAGE ID #5218**

STATION DESCRIPTION

LOCATION – The gaging station is located south of the intersection of Wickenburg Road and Vulture Mine Road. Follow the unpaved portion of Vulture Mine Road about 1/8 mile to the gage location. The station is on the left bank of the channel. Latitude N 33° 42' 56.7", Longitude W 112° 52' 55.3". Located in the NE1/4 SE1/4 NE1/4 S04 T4N R6W in the Belmont Mountains 7.5-minute quadrangle.

ESTABLISHMENT – Gaging was established on October 31, 2000.

DRAINAGE AREA – About 120 mi²

GAGE – The level sensor gage is a pressure transducer type instrument. The diaphragm is at elevation 2.30 feet gage height or 1,689.10 feet NAVD88, levels of December 13, 2000.

There is no staff gage at this location.

There is one crest-stage gage at this location. It is located just downstream from the pressure transducer. The pin elevation is at 2.99 feet gage height, levels of August 31, 2004.

ZERO GAGE HEIGHT – Zero gage height is defined as 1,686.80 feet NAVD88.

HISTORY – No previous gaging at this location. The USGS has gaged Jackrabbit Wash approximately 4 miles downstream since 1964. Gaging established on October 31, 2000 by the Flood Control District. Crest-stage gage replaced at same location on August 25, 2004 due to vandalism.

REFERENCE MARKS –

RM-JCKRBT is an FCD brass cap located about 20 feet north of the gage standpipe. Elevation is 16.30 feet gage height, levels of September 19, 2001, or 1,703.10 feet NAVD88, levels of December 7, 2000. Northing 989226.738, Easting 406536.960.

RP1 is the top of the rear PT bracket. Elevation 2.66 feet gage height, levels of August 31, 2004.

RP2 is the ground at the PT, directly in front of the PT conduit. Elevation 1.95 feet gage height, levels of August 31, 2004.

There are nine monumented cross sections in a reach stretching approximately one mile downstream from the gage cross section. The gage cross section is monumented with rebar. Each of cross section two through nine is monumented with fence rail hammered into the ground as far as possible. Both left and right banks are monumented at each cross section. All are levels of December 7 or 13, 2000.

XS END POINT	ELEV (NAVD88)	NORTHING	EASTING
XSGLB	1704.66	989207.244	406523.662
XSGRB	1704.39	988182.919	405853.091
XS2LB	1700.46	988702.346	407249.288
XS2RB	1702.70	987678.316	406254.782
XS3LB	1694.70	988215.369	407761.746
XS3RB	1699.25	987152.574	406596.131
XS4LB	1691.30	987733.494	408133.752
XS4RB	1693.36	986697.622	407003.433
XS5LB	1685.27	987511.623	408343.836
XS5RB	1689.70	986560.753	407485.440
XS6LB	1686.27	987124.642	408834.473
XS6RB	1685.60	986427.681	408012.352
XS7LB	1683.11	986569.509	409145.291
XS7RB	1677.61	985765.796	408412.171
XS8LB	1674.28	985840.757	409611.356
XS8RB	1672.19	985259.534	408705.875
XS9LB	1669.95	985246.500	409824.230
XS9RB	1670.52	984759.598	408980.846

CHANNEL AND CONTROL – The channel is wide with a mainly sandy bottom. At the gage, the left bank is nearly vertical, with the right bank being more gradual. About 1,000 feet downstream, both banks are very similar and the channel has a mainly trapezoidal shape. The channel begins to contract to around 1,000 feet in width at about 2,500 feet downstream from the gage.

There is little apparent control at low flows. Moderate flows are controlled by the channel near the left bank. However, somewhat higher flows may be contained by several channels. At higher stages the entire channel is control.

RATING – The current rating is Rating #2. It was developed from the three indirect measurement points computed, (500 cfs, 6,000 cfs, and 32,400 cfs). A log-log plot of the data was made and manipulated slightly to achieve the rating. The rating represents about a 0.4 foot shift lower in the mid-range flows. Rating #2 converges with Rating #1 at about 30,000 cfs. Slightly higher roughness values were chosen in the indirect

measurement at 6,000 cfs. Main channel n was 0.03 with overbanks ranging from 0.05 to 0.07.

An initial rating (Rating #1) was developed from a survey of nine cross sections in an approximate one mile reach downstream. The flow is subcritical for all stages in all nine cross sections. An HEC-RAS model was developed with the survey data. Thirty profiles from 100 to 50,000 cfs were used. Normal depth was used as the boundary condition with a slope of 0.0062 ft/ft. N values used ranged from 0.028 in the clear main channel to 0.045 in the overbanks. None of the channel is heavily vegetated and the 0.045 number in the overbanks represents both vegetated and non-vegetated portions. An indirect measurement was taken at the gage location following an event prior to gage installation. This point was used in development of the rating curve.

DISCHARGE MEASUREMENTS – Low flows could be measured by wading the channel. Given the distance from the office, it may be impossible to reach the wash while flowing. A suitable indirect measurement site is could use any combination of cross sections 1 –9 previously identified.

POINT OF ZERO FLOW – The PZF as surveyed in March 2005 is 1.47 feet gage height.

FLOODS – The largest known flood occurred on October 27, 2000. Discharge was computed from an indirect measurement. The peak for the event was 32,400 cfs at approximately 9.90 feet gage height (about 8.5 feet above the surveyed channel minimum. (The gage was not installed at the time of the event.) The USGS reported a discharge of 29,000 cfs at 15.1 feet gage height from an indirect measurement computation at their gage at Wickenburg Road four miles downstream. A flood occurred on September 8, 2002 of about 6,000 cfs at about 5.7 feet gage height.

REGULATION – None known

DIVERSIONS – Perhaps some small watersheds are impounded for cattle watering.

ACCURACY – Fair

JUSTIFICATION – Provide warning for Wickenburg Road approximately 4 miles downstream.

UPDATE – July 19, 2011
D E Gardner